Cotton/Soybean Insect Newsletter

Volume 15, Issue #15 Edisto Research & Education Center in Blackville, SC 14 August 2020

Pest Patrol Alerts

The information contained herein each issue is available via text alerts that direct users to online recordings. I will update the short message often for at least as long as the newsletter runs. After a new message is posted, a text message is sent to alert users that I have recorded a new update. Users can subscribe for text message alerts for my updates in two easy steps. Step one: register by texting **pestpat7** to 97063. Step two: reply to the confirmation text you receive by texting the letter "y" to complete your registration. Pest Patrol Alerts are sponsored by Syngenta.

Updates on Twitter

When noteworthy events happen the in the field, I will be sending them out quickly via Twitter. If you want to follow those quick updates, follow me at **@bugdocisin** on Twitter.

News from Around the State

Jonathan Croft, county agent in Orangeburg County, reported that he "checked soybeans on the edge of Calhoun and Orangeburg Counties this morning [yesterday] and found about 50% threshold on soybean looper and kudzu bug nymphs. Also picked up a few immature green stink bugs and a few velvetbean caterpillars. These were in beans setting pods. No podworms. In some beans behind wheat just at full bloom stage grasshoppers were only insects worth mentioning in those, and defoliation was minimal." I also spoke with **Drake Perrow** and **Fleming McMaster**, crop consultants in SC, this week, and they were noticing some of the same things I have been noticing this past week. There were many bollworm moths flying around in cotton and soybeans this week, and stink bug numbers have increased in both crops. I saw this Pima cotton bloom in one of my trials this week. Rare find. Send me your reports for this section!

Upcoming Virtual Field Days

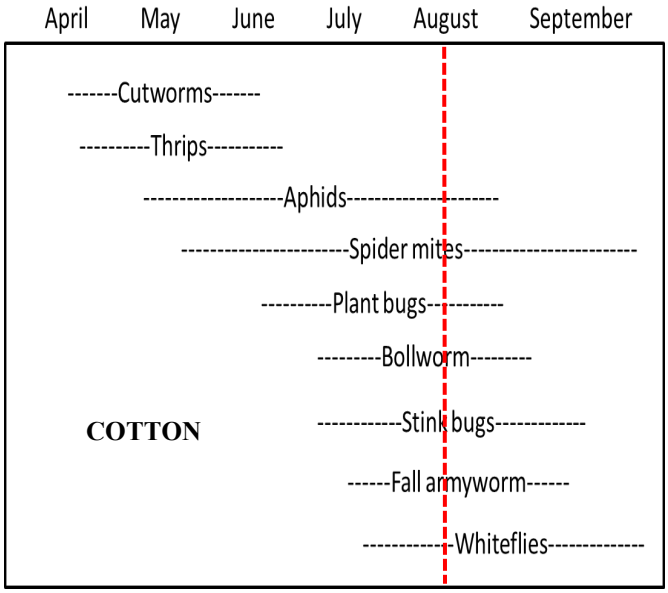
Clemson University will be offering a handful of virtual field days this fall, so look out for notices on those. I will certainly send out the link to the Edisto REC field day when it is ready. We are aiming for having it go live on 10 September, but it should remain up for some time to allow folks to participate when they can. We are working on ways to provide certification credits for watching segments, and the virtual surf and turf lunch will be fantastic! Just kidding. However, virtually, you can imagine any lunch you desire!

Cotton Situation

As of 9 August 2020, the USDA NASS South Carolina Statistical Office estimated that about 87% of the crop is squaring, compared with 80% at this time last week, 99% at this time last year, and 96% for the 5-year average. About 65% of the crop is setting bolls, compared with 48% at this time last week, 79% at this time last year, and 79% for the 5-year average. The condition of the crop was described as 15% excellent, 51% good, 18% fair, 10% poor, and 6% very poor. These are observed/perceived state-wide averages.

Cotton Insects

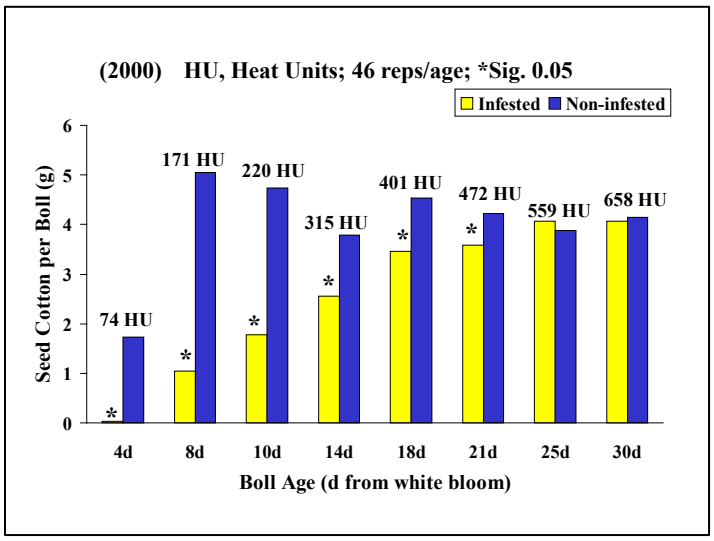
There are bolls opening on the bottom of cotton plots I had planted in April, so, counting graduate school, the end of my 28th insect season is near. Many of you have more "cotton years" than me, so we have seen many crops. They have all been different, and 2020 has been a wild one. This photo of a bird-dropping moth on a cotton leaf sums up 2020. ☺ One of my colleagues called it a "crappy" picture!

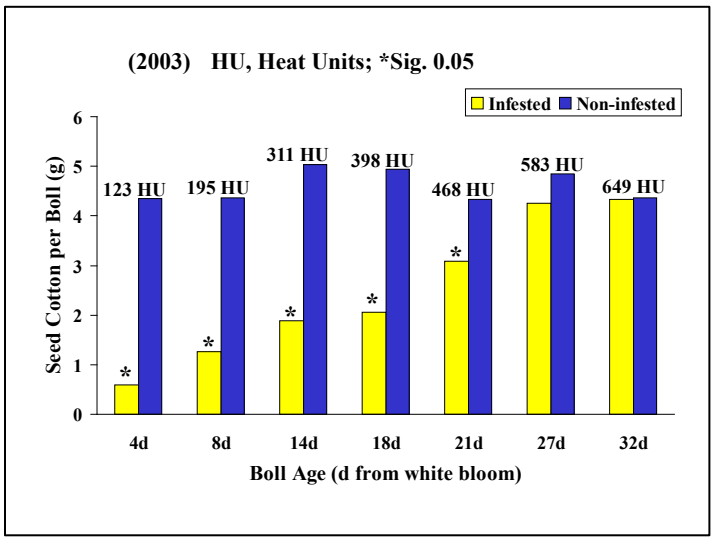


Captures of bollworm moths in pheromone traps increased, and numbers this week were higher than they have been all season and certainly higher than last year. I stated last week that the rainstorms would wet the soil and likely release additional moths from their pupal cells underground. That prediction came true, and, as the rains continue, I expect the flight to continue. Keep a watchful eye on 2-gene Bt cotton. The technology seems to be holding up this season, but we have recently observed square and boll damage over threshold in 2-gene Bt cotton. Moths are undoubtedly depositing more eggs, and there are still positions on the plant to protect. The eggs are difficult to locate, but get out and try to find them on terminals and near squares and blooms. We will probably see caterpillars causing injury next week. Counts of bollworm eggs at or exceeding 20 eggs per 100 plants should get your attention. If 3 or more larvae are found per 100 plants or damage to squares and bolls exceeds 5-6%, treatment thresholds have been met.

I pulled this large bollworm out of a boll this week, but I also observed small ones boring into the tops of bolls under dried bloom tags, and we saw some in white blooms also.

We are half way through the "stink bug month" of August! Numbers of mating pairs of stink bugs were up this past week, and you know what that means. I saw the big 3 – southern green, green, and brown stink bugs. We have them all in cotton here in SC. Stink bugs should be the focus of insect management efforts in cotton now and into September. Bolls are relatively safe from stink bug injury when they reach about 21-25 days from bloom – about a full-size boll. Here are a couple of charts showing some old data of mine from cage studies addressing boll age and stink bugs forced to feed on bolls of varying ages. If given a choice, and they have a choice in the field, stink bugs will move to bolls smaller than fully grown ones, so the safe age of 21-25 days is a conservative one.





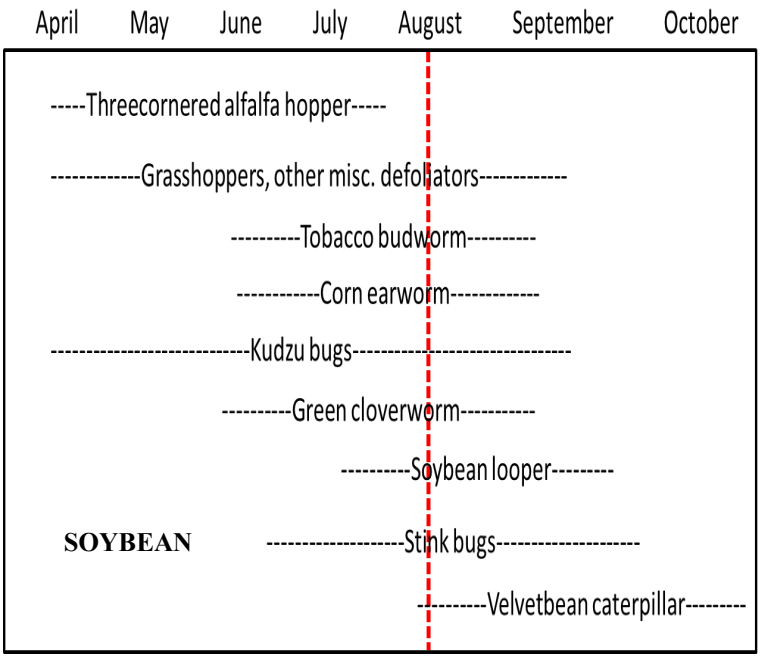
Our recommendations for controlling stink bugs are included in the 2020 Pest Management Handbook (https://www.clemson.edu/extension/agronomy/pest%20management%20handbook.html) and in the previous two issues of this newsletter.

Soybean Situation

As of 9 August 2020, the USDA NASS South Carolina Statistical Office estimated that about 57% of the crop is blooming, compared with 41% the previous week, 57% at this time last year, and 58% for the 5-year

average. About 25% of the crop is setting pods, compared with 16% the previous week, 16% at this time last year, and 19% for the 5-year average. The condition of the crop was described as 18% excellent, 53% good, 17% fair, 7% poor, and 5% very poor. These are observed/perceived state-wide averages.

Soybean Insects



As foliar diseases are getting cranked up during these wet and cloudy thunderstorm days we have been experiencing, it is a great time to thoroughly scout your soybean fields for insects to see if a tank mix of fungicide and insecticide is in order. With input costs up and commodity prices down, all are trying to minimize costs, for sure. There is potential to save a trip or two across the field, if everything lines up.

Defoliation is increasing, as are populations of soybean loopers. I saw moths of soybean looper (SBL) and green cloverworm (GCW) this week, so we are still observing many different species in the field. I mentioned last week the importance of being able to tell these two species apart when they are small caterpillars. Make sure you can do that. Again, small GCW "loop" when they crawl and look just like SBL. You have to look very closely with magification to properly identify the two. Costly materials are needed for control of SBL, but you can control GCW easily with a pyrethroid. Velvetbean caterpillar (VBC) is in the mix also, but this migratory species has yet to arrive in large numbers like they did last year. That is probably coming, though, within the next few weeks. Watch this complex of defoliating caterpillars, and don't let defoliation exceed 30% before mid-bloom or 15% after that. Estimate defoliation at least weekly. Use a sweep net or a drop cloth to make counts of insects to see what species you have, as insecticide choice depend on proper identification of species. Podworm moths (same as bollworm) were abundant in soybeans this week, so they might also be a factor next week as larvae feeding on pods. Here is one I found this week. Notice the pod damage. Look for caterpillars!

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As pods develop, stink bugs should be the focus of insect control in soybeans. They are our number one insect pest group of soybeans in the state. Thresholds for stink bugs and other key insect pest in soybeans are shown here:

BEAT-CLOTH THRESHOLDS

The thresholds in **Table 1 (per row ft)** and **Table 2 (per 3-ft sample)** can be used with the beat cloth method.

Table 1. Treatment thresholds **(per row ft)** for soybean insects sampled with beat cloth.

Pest	Row width (inches)				
	38	30	21	14	7
stink bug	1	0.8	0.5	0.3	0.2
corn earworm*	2	1.6	1.1	0.7	0.4
velvetbean caterpillar	4-6	4	2.7	1.8	0.9
soybean looper	6-8	5.5	3.8	2.6	1.3

*this is the pod-feeding threshold for corn earworm

Table 2. Treatment thresholds **(per 3 row ft)** for soybean insects sampled with beat cloth.

Pest	Row width (inches)				
	38	30	21	14	7
stink bug	3	2.4	1.6	1.1	0.5
corn earworm*	6	4.7	3.3	2.2	1.1
velvetbean caterpillar	12-18	12	8.3	5.5	2.7
soybean looper	18-24	16	11.6	7.7	3.8

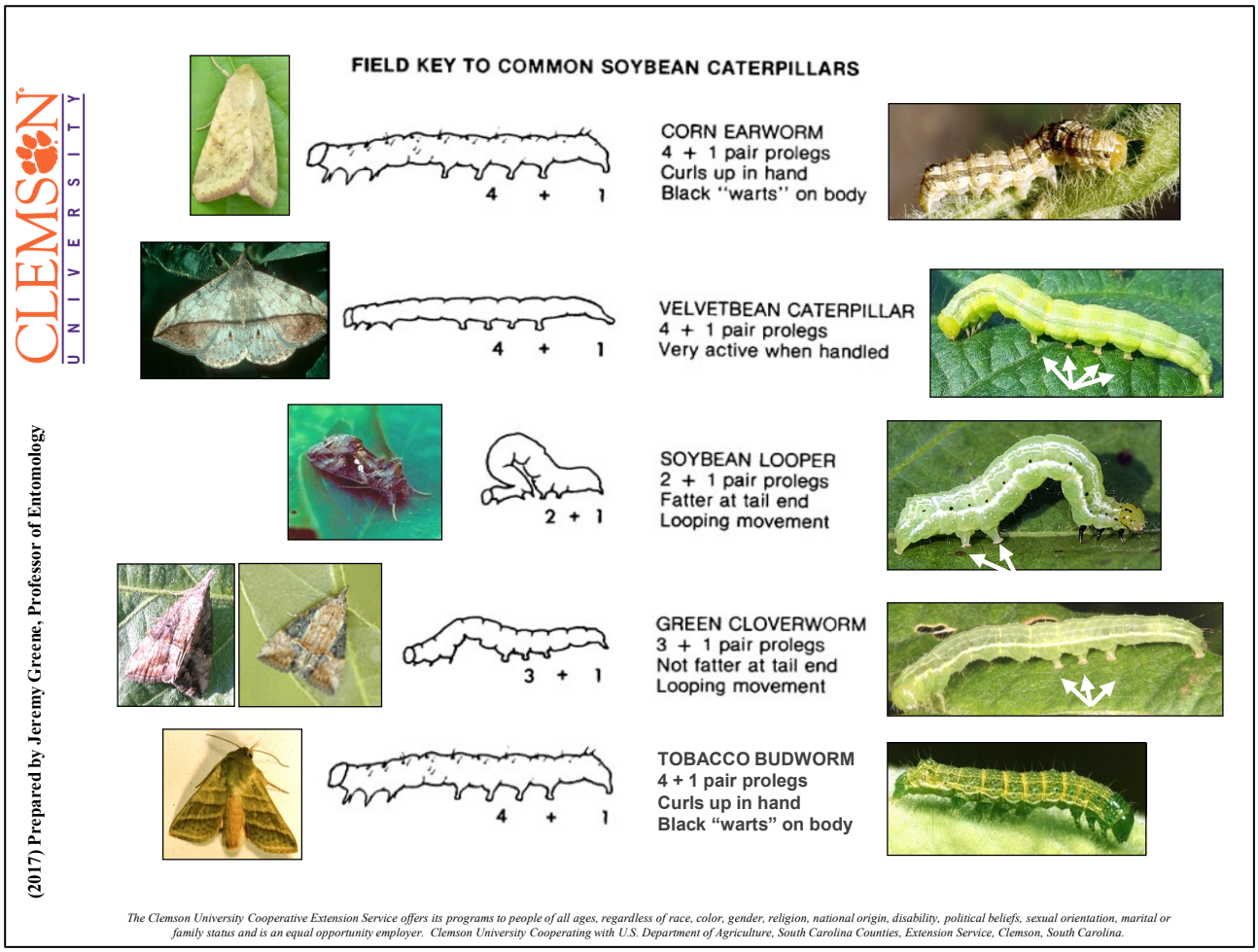
*this is the pod-feeding threshold for corn earworm

SWEEP-NET THRESHOLDS

Sweep net thresholds in drilled soybeans are not as well-defined as those for beat/shake samples. The following thresholds should be considered guidelines until more research is available. Use percent defoliation estimates as an additional treatment guideline for foliage feeders. Prior to bloom, up to 30% defoliation is acceptable without economic yield loss, but once blooming begins, the guideline drops to 15% defoliation.

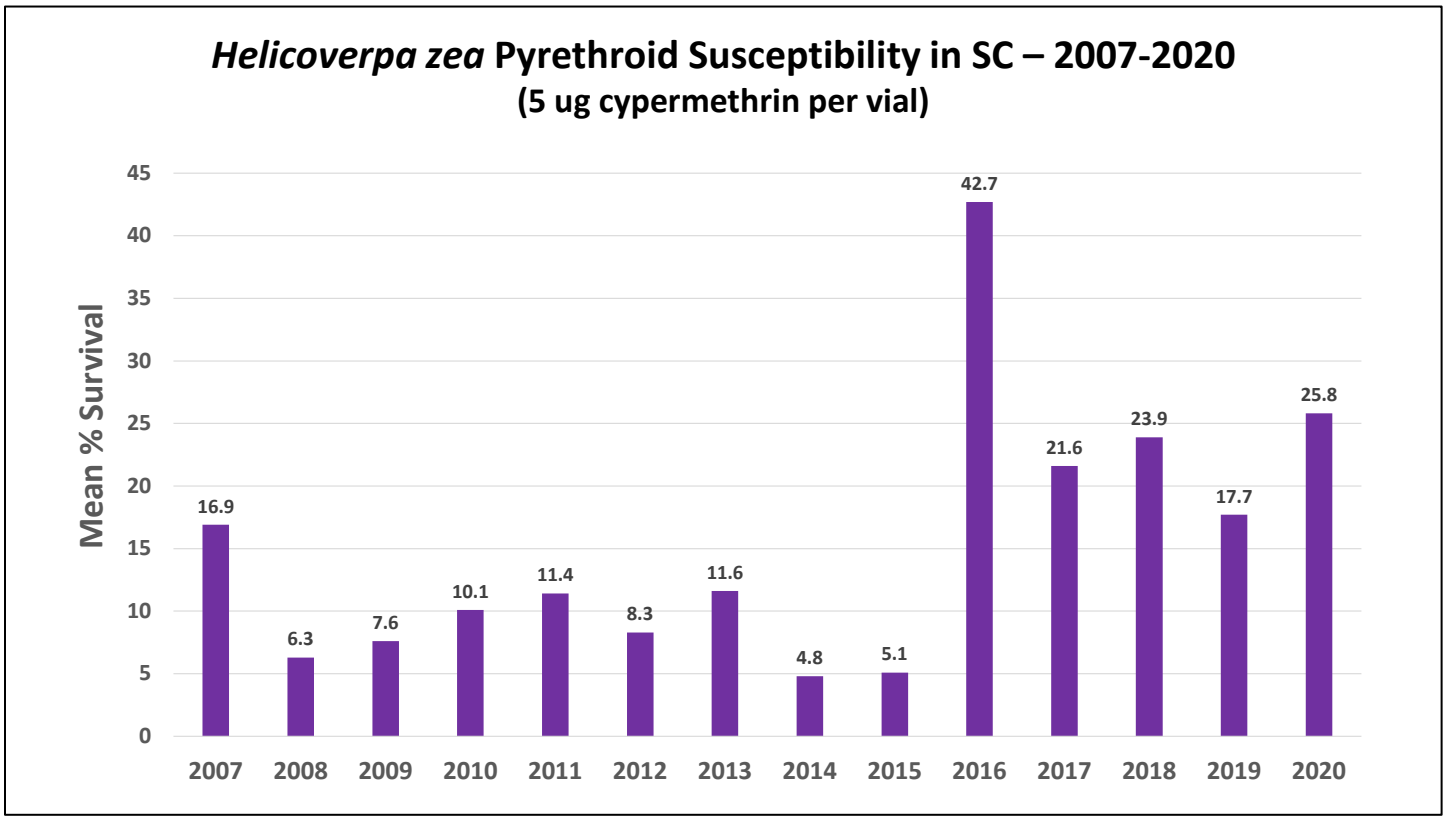
Table 3. Treatment guidelines for soybean insects sampled with a sweep net.		
Pest	Number per 10 sweeps	Comments
stink bug	1-2	
corn earworm	3	or 15% foliage loss
velvetbean caterpillar	10	or 15% foliage loss
soybean looper	15	or 15% foliage loss
kudzu bug	10 (nymphs)	1 nymph per sweep
For other foliage feeders use a threshold of 30% defoliation before first bloom, 15% after first bloom.		

Be able to recognize larvae and moths! Use the chart here for identifying adults and larvae.



Efficacy of Pyrethroids on Bollworm/Podworm

Control of bollworm/podworm in cotton/soybeans with pyrethroid insecticides has been declining over time, and we have reported on this since 2016. The chart below illustrates declining performance of pyrethroids on that species using data from laboratory bioassays on adults (male moths we capture in pheromone traps) of *Helicoverpa zea* (bollworm/podworm). I have been running these assays in collaboration with my colleagues since 2007. In 2016, we detected a huge shift in survival rates that has remained elevated in recent years. The average for 2020 will fluctuate a little until the final average, but I expect it to be around 20% and similar to the last 3 years. What does this mean? It indicates that we are likely going to see reduced performance of pyrethroids on bollworm/podworm in the field. Despite losing some efficacy of the pyrethroids on bollworm/podworm, the pyrethroids will continue to be used for control of stink bugs in cotton because of good initial and residual control. These applications will help control some bollworms making it through Bt toxins, but they will not cover all escapes. This is particularly concerning in 2-gene Bt cotton that predominates acreage in our state and for all acres of soybeans blooming and setting pods right now. Activity of bollworm/podworm in pheromone traps increased this week.



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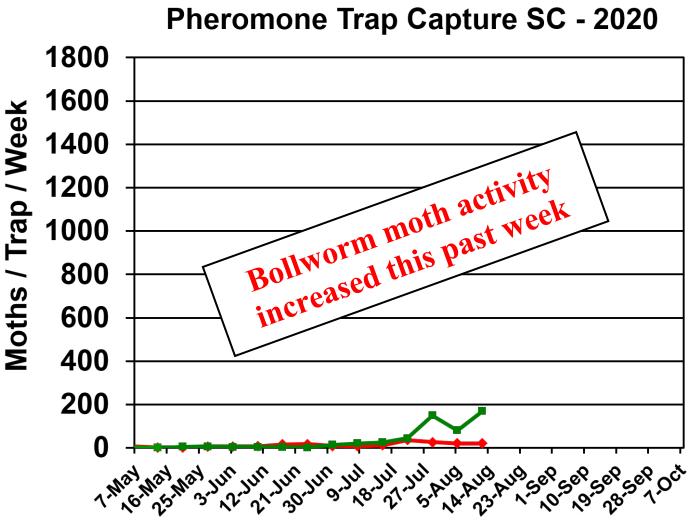
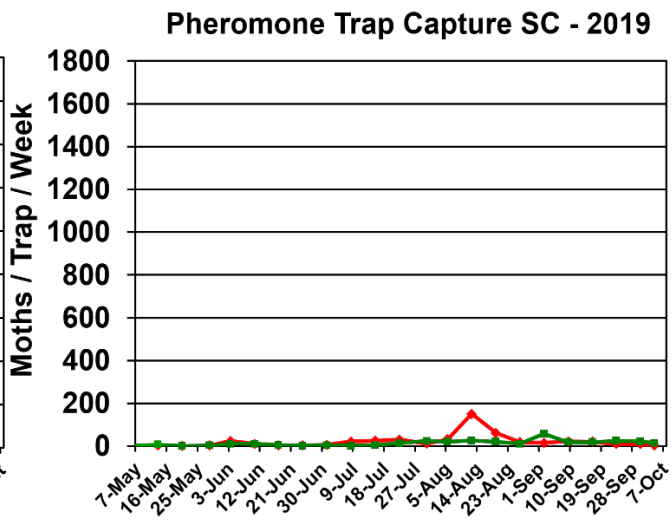
Bollworm & Tobacco Budworm

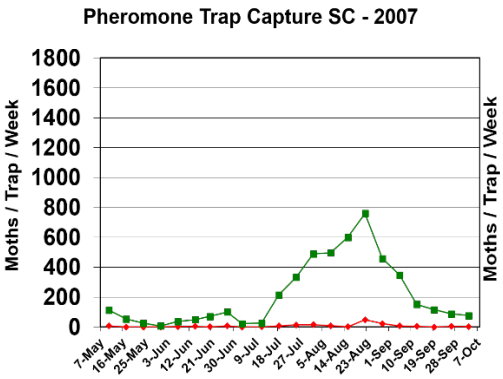
Captures of bollworm (BW) and tobacco budworm (TBW) moths in pheromone traps at EREC this season are shown below, as are the captures from 2007-2019 for reference. Tobacco budworm continues to be important for our soybean acres and for any acres of non-Bt cotton. I provide these data as a measure of moth presence and activity in our local area near my research plots. The numbers are not necessarily representative of the species throughout the state.

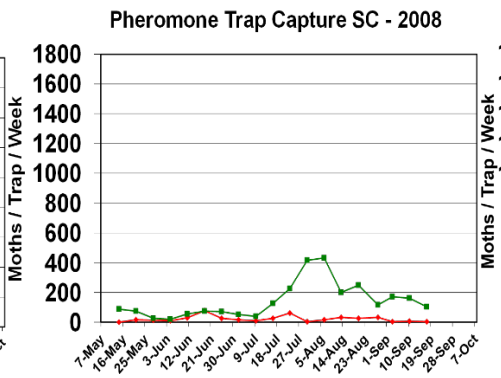
TBW
BW

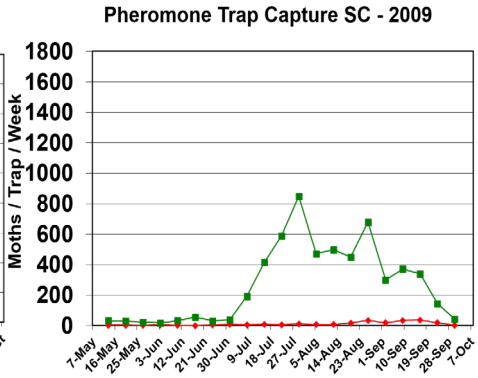


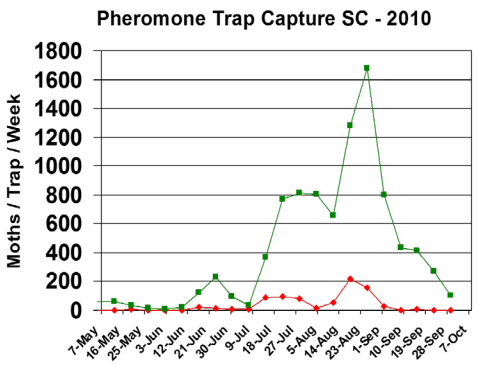


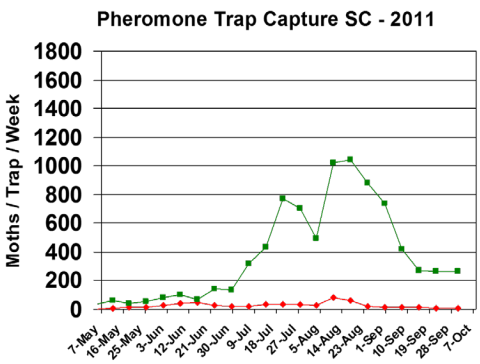
Trap data from 2007-2018 are shown below for reference to other years of trapping data from EREC:

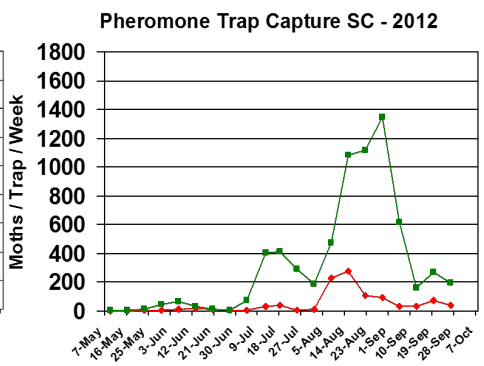


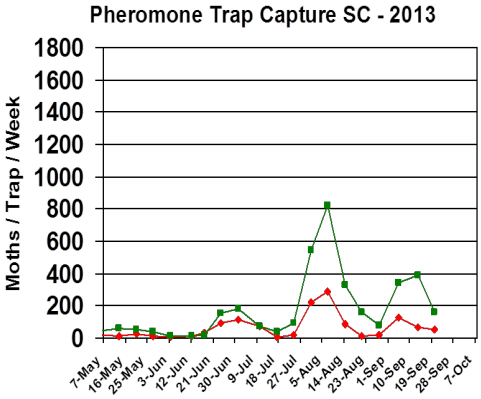


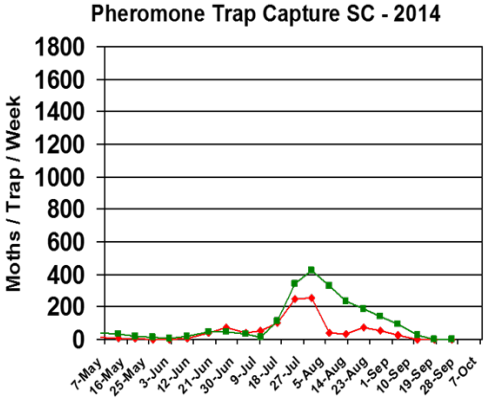


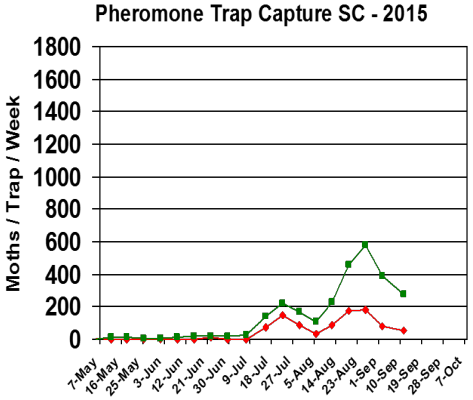


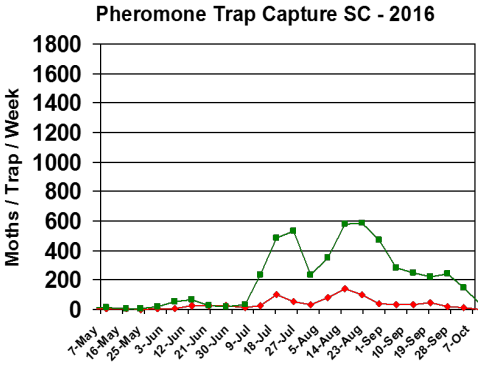


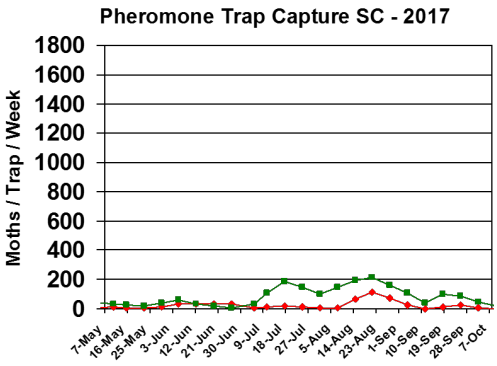


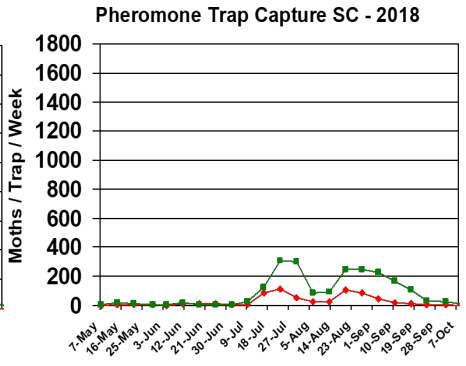








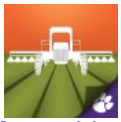




Pest Management Handbook – 2020

Insect control recommendations are available online in the 2020 South Carolina Pest Management Handbook at:
https://www.clemson.edu/extension/agronomy/pest%20management%20handbook.html

Free Mobile Apps: "Calibrate My Sprayer" and "Mix My Sprayer"



Download our free mobile apps called "Calibrate My Sprayer" and "Mix My Sprayer" that help check for proper calibration of spraying equipment and help you with mixing user-defined pesticides, respectively, in custom units (available in both iOS and Android formats):
http://www.clemson.edu/extension/mobile-apps/

Need More Information?

For more Clemson University Extension information: http://www.clemson.edu/extension/

For historical cotton/soybean insect newsletters:
https://www.clemson.edu/extension/agronomy/cotton1/newsletters.html

Sincerely,

Jeremy K. Greene, Ph.D.
Professor of Entomology

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